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By-Muthard, John E., Ed.; Dumas, Neil S., Ed.

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This report reviews the accomplishments, nature, score, and intended impact of the Regional Rehabilitation Research Institute at the University of Florida (UF-RRRI). The Institute's current projects and activities in manpower and research utilization are reviewed as well as investigations conducted by previous staff members in the areas of client motivation and the selection of personnel for the health related professions. Abstracts of completed studies are provided in addition to an enumeration of the Institute's research resources and on-going projects investigating the use of support personnel in occupational and physical therapy as well as rehabilitation counseling. (Author)

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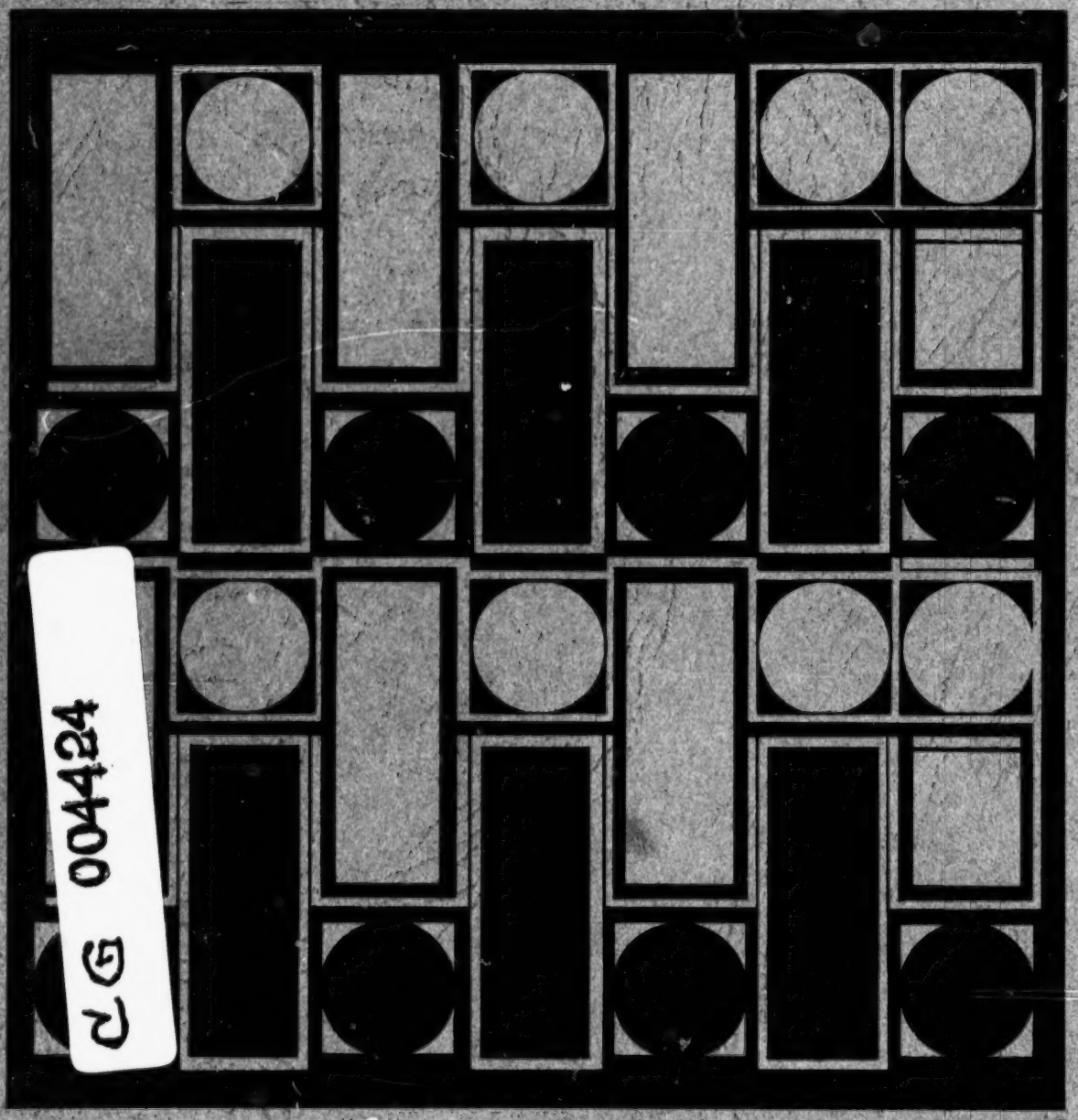

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SIX YEARS OF REHABILITATION RESEARCH: STUDIES OF PERSONNEL IN HEALTH RELATED PROFESSIONS, CLIENT MOTIVATION AND RESEARCH UTILIZATION

Edited by

JOHN E. MUTHARD

NEIL S. DUMAS

Regional Rehabilitation Research Institute
College of Health Related Professions
University of Florida

Final Report RD-1127-G

Gainesville, Florida
April, 1969

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UF-RRRI
Health Center Box 208
University of Florida
Gainesville, Florida 32601

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PREFACE

As the final report for the Social and Rehabilitation Service grant RD 1127, this publication reviews the activities of the University of Florida Regional Research Institute (UF-RRRI) from its establishment through the advent of the new core research program. It also describes the recent and current activities of the UF-RRRI so that rehabilitation workers can know how the Institute's publications and projects may assist them. Lastly, the report presents abstracts of the monographs and the journal articles written by the previous staff which were relevant to the core research areas of the Institute s first years. Additional reports which have relevance to rehabilitation workers are also presented.

The research described herein has been conducted by the UF-RRRI as a integral unit of the College of Health Related Profession at the University of Florida. The guidance and assistance of the Dean of that College, Darrel J. Mase, has contributed materially to the efforts of the Institute. He initiated the establishment of the UF-RRRI and was its first project director. Being a part of the College of Health Related Professions has facilitated the Institute's research efforts in the past and is contributing substantially to its current activities.

Since its inception the major support for the UF-RRRI has come from the Social and Rehabilitation Service. Until March 31, 1967 ,this was provided under grant RD 1127, and since that date under RD 2870. We appreciate the assistance of Mr. N. Edward Acree, of that agency, in planning this report.

To an even greater extent than most reports, this publication would not have been possible without the work of many others. The publications of Drs. Harry E. Anderson, Jr., John R. Barry, George H. Dunteman and Mr. John P. Bailey, Jr. provide the basis for a large part of this report.

JEM
NSD
March, 1969

ABSTRACT

This report reviews the accomplishments, nature, scope and intended impact of the Regional Rehabilitation Research Institute at the University of Florida (UF-RRRI). The Institute's current projects and activities in manpower and research utilization are reviewed as well as investigations conducted by previous staff members in the areas of client motivation and the selection of personnel for the health related professions. Abstracts of completed studies are provided in addition to an enumeration of the Institute's research resources and on-going projects investigating the use of support personnel in occupational and physical therapy as well as rehabilitation counseling.

INTRODUCTION

With the initiation of a new program of rehabilitation research at the University of Florida Regional Rehabilitation Research Institute (UF-RRRI), it seems desirable to review the work, accomplishments and future plans of the Institute. This report describes the UF-RRRI's newly established core research interests and the steps planned to realize them. It also presents a recapitulation of the activities of the UF-RRRI for the recent past as well as its first five years. Thus, this publication should serve not only to make information (which heretofore appeared only in scholarly journals) more accessible to rehabilitation personnel, but also provide for a better understanding of what UF-RRRI has done and is planning to do.

Research and other activities in the following topical areas will be described:

1. personnel utilization in the health related professions,
2. the selection and training of health related professionals,
3. research utilization and dissemination,
4. client motivation and attitudes, and
5. other research projects and activities of the Institute staff.

ROLE OF A REHABILITATION RESEARCH INSTITUTE

Many individuals who are interested or should be interested in the activities of Regional Rehabilitation Research Institutes (RRRI) do not understand their purposes and programs. From the beginning, the RRRIs have had the following goals:

1. To develop and conduct a program of research in an area important to vocational rehabilitation,

2. To provide research consultation to state rehabilitation agencies on operational problems, and

3. To participate in operational re search at the request of state rehabilitation agencies.

Among the core research areas chosen by the RRRIs for intensive study have been client dependency and motivation, the provision of services to the culturally disadvantaged, rehabilitation in rural America, the functions of the state agency counselor in the rehabilitation process, etc.

Since 1959, RRRIs have been established in each of the nine regions of the Social and Rehabilitation Service (Department of Health, Education and Welfare). Each has followed the purposes listed above. Readers interested in further information about any of the eight other Institutes should write to their directors as listed in Appendix A. The ninth Institute, at the University of Florida, is described in the following pages.

INSTITUTE ACTIVITIES: 1967-1969

In 1967, the UF-RRRI changed its core research program to study personnel utilization problems in rehabilitation service professions. The form of this new core area of investigation took the shape of a three pronged attack on methods of more efficiently solving personnel utilization problems as follows:

1. A series of investigations of the role, function, selection, training and supervision of support personnel in physical and occupational therapy as well as rehabilitation counseling,

2. The continuation of a longitudinal study of personnel in the health related professions aimed at identifying the characteristics of those individuals who are most likely to complete their education and actually pursue their chosen profession in a rehabilitation-related setting, and

3. The on-going review, evaluation, development and publication of new techniques for disseminating storing, retrieving and utilizing, information, e.g., research results with the goal of facilitating useful innovations.

In addition, the UF-RRRI has and plans to continue sponsoring conferences on topics relevant to rehabilitation personnel as well as meeting the other general goals of a RRRI.

SUPPORT PERSONNEL.

To study manpower problems in physical therapy, rehabilitation counseling and occupational therapy, a variety of methods from personnel psychology and operations research are used. The initial work of the UF-RRRI focuses upon research questions regarding the selection and utilization of support personnel in these three rehabilitation service professions. Such studies not only involve an examination of the entire pattern of services in the organizations, but also a look at the fully trained professional as these relate to the use of support personnel. The first investigation in the series focuses upon the physical therapist and provides the basic model for later study of the occupational therapist and rehabilitation counselor.

Physical Therapy. The approach selected to investigate the use of support personnel in physical therapy (PT) comprises: 1) planning and constructing a mathematical model of the main elements of a PT facility, 2) simulating the operation of this model facility via computerized techniques, 3) systematically varying the roles and functions of the personnel (i.e., Registered Physical Therapist, Assistant and Aide) according to a preset experimental design and 4) evaluating the results to estimate a set of optimum utili zation and staffing patterns that can meet the demand for services.

Objective data for the simulation experiment will be collected at the University of Florida Health Center. The analyses will be performed with the assistance of the Health Center's statistician.

Representatives of the American Physical Therapy Association have agreed to assist in establishing criteria and otherwise cooperate with the study.

Although the simulation model will be applicable to a wide variety of settings, the use of data from the Health Center limits the interpretation of the results to that facility. However, plans have been made to collect data from a number of other facilities to broaden the generalizability of conclusions drawn from the experiment. Conceivably, it would be possible to not only suggest optimum roles and functions for each facility s personnel, but also to identify a policy which would best meet the needs of most PT installations in the country.

Rehabilitation Counseling. Since 1965. Dr. Muthard has been directing a nationwide study of the roles and functions of the rehabilitation counselor sponsored by the American Rehabilitation Counseling Association and the Social and Rehabilitation Service. This investigation aims at providing basic information relevant to the utilization and education of rehabilitation counselors. It will provide a context for a later study of support personnel in vocational rehabilitation. The study, which is to be published in 1969, will describe:

a) the functions performed by rehabilitation counselors (RC) in various settings;

b) the perceptions of counselors and others of the current role of the RC;

c) the perceptions of counselors and others of the desirable role of the RC;

d) the extent to which work setting and personal characteristics are related to the actual and desirable functions of the RC;

e) the conceptions of the future roles and functions of the RC held by leaders in the field of rehabilitation; and

f) the implications of the various RC role perceptions for the preparation of rehabilitation counselors.

Conference on Counselor Roles and Functions. With the completion of the data collection and analysis phases of The Rehabilitation Counselor study, the Institute staff planned and conducted a Research Utilization Conference of Rehabilitation Counselor Research in Washington, D. C. on November 7-8, 1968. This conference brought together delegates of the major national associations concerned with the job of the rehabilitation counselor, representatives of the state, federal and private agency service programs and investigators engaged in related research. A publication which reviews the projects presented and the activities of these two days will be published during the spring of 1969.

LONGITUDINAL STUDY OF PERSONNEL IN THE HEALTH RELATED PROFESSIONS.

For over five years, the UF-RRRI has been collecting data on all students enrolled in a University of Florida course

entitled "Introduction to the Health Related Professions." For the most part, these students intended to major in occupational therapy (OT), physical therapy (PT) or medical technology (MT). These data included not only the usual biographical items, but also the results of selected interest inventories and personality measures. As the students who participated in the earlier UF-RRRI studies (Dunteman, Anderson, Barry, 1966) graduate, data concerning their success and persistance at their chosen profession will be collected as criteria for a multivariate analysis.

This analysis will attempt to identify the characteristics of those students who are most likely to graduate, enter, succeed and persist in their chosen field. The goal of this study is to develope a predictive formula which will assist in the counseling and selection of prospective students for OT, PT, and MT. In addition, the results are expected to provide leads toward the development of improved supervision and evaluation techniques in these fields.

Since early 1968, a similar study has been initiated with students entering the rehabilitation counseling program at several universities including the: University of Florida, University of Georgia, Michigan State University, State University of New York at Buffalo, West Virginia University, and the University of Scranton. This study will examine the relationships between selected personal data and inventory scores with success in graduate work, type of position taken, persistence in rehabilitation work, and performance on the

Graduate Student Examination in Rehabilitation Counseling prepared by the Professional Examination Service of the American Public Health Association.

DISSEMINATION, RETRIEVAL AND UTILIZATION OF INFORMATION.

The UF-RRRI staff believe that the use of already established research results for innovative purposes provides a fertile area for the development of improved personnel utilization methodologies. For this reason, an on-going series of projects was established to develop new tools, disseminate information and provide consultation to other organizations upon request.

KWIC Indexes to Rehabilitation and Other Literature. During 1968, the UF-RRRI staff identified a need for compiling a set of indexes to literature relevant to rehabilitation personnel. Three publications, all indexed via computerized techniques, were published:

1) Selected Rehabilitation Counseling Literature, a comprehensive bibliography-index to 3,199 references selected from hundreds of rehabilitation related sources,

2) Management and Personnel Abstracts, 1,000 abstracts of recent operations research, computer, business and other technical literature selected and indexed for rehabilitation personnel, and

3) Research and Demonstration Projects: A Bibliography, a comprehensive index to 2,425 project reports and the journal articles that resulted from them.

These publications are still available in limited numbers from the Institute. The indexing procedure, KeyWord-In-Context (KWIC), is also used to maintain the Institute s in-house information system.

Information Resources Project. If supplemental resources become available, the UF-RRRI will undertake the preparation of additional "tools" designed to facilitate access to and the utilization of information resources (e.g., facilities and data) by rehabilitation personnel. These "tools" will take the form of three publications as follows:

1) a catalogue of all research projects sponsored by the Social and Rehabilitation Service as well as the publications resulting from them. This catalogue will also include subject and author indexes compiled via computerized techniques similar to those already published by theInstitute;

2) a guide to information systems in the United States which will provide services to rehabilitation personnel. This guide will be indexed by subject content as well as geographical location and include all the information necessary to indentify and use each facility (e.g., name and number of the person to call, probable cost if any); and

3) a directory of research personnel in the United States with interests relevant to rehabilitation, indexed by areas of competency, previous publication topics and geographical location.

As a set, the first two "tools" provide media for identifying and obtaining relevant information or research results. The third "tool," the directory of research personnel, is a means for identifying the nearest competent researcher having the capability of providing consultation (e.g., to help interpret and apply the research results obtained via the first two "tools").

Conference on Research Utilization and Dissemination. There is little justification for research activities unless some plan is formulated to utilize their results. Consequently, the UF-RRRI sponsored a conference comprising representatives of rehabilitation agencies in the Southeast to review ways and means of disseminating, retrieving, and utilizing research and demonstration results. This conference was held on June 6-7, 1968, in Atlanta, Georgia. The topics discussed included: information storage and retrieval procedures, activities of the Social and Rehabilitation Service, research and demonstration grant applications, and operations research techniques. Two group sessions were also held to gather the suggestions of people who face these problems every day. The proceeding of this conference which was published late in 1968 under the title: Research Utilization and dissemination: Proceedings of a Regional Conference (Dumas, 1968).

The Research Utilization Specialist Project. The staff of the UF-RRRI has and plans to continue participating in the planning and future phases of the forthcoming national demonstration designed to improve the methodology and rate of research utilization and innovation. This project involves placing a Research Utilization Specialist in one state in each Social and Rehabilitation Service Region to speed the rate of information transfer and useful innovation. The training program for these Specialists is slated to be conducted by the Department of Rehabilitation Counselor Education at the University of Florida.

THE RESEARCH POSTURE OF THE UF-RRRI.

A concerted effort continues to develop resources within and associated with the Institute to improve the capability and potential for future research activities. In this connection, the UF-RRRI has invested many months in developing a comprehensive library of computer programmes for multivariate and univariate analyses, information storage and retrieval applications, and operations research methodologies. These programs also provide the basis for the operation of an in-house information systems which is the main access medium to the Institute's extensive hardcopy and microfiche collection. Processing for these applications are accomplised through rapid and economical conversion of data into machine readable form.

The Institute staff maintains joint appointments in the following University

of Florida Departments: Rehabilitation Counselor Education (College of Health Related Professions), Counselor Education (College of Education), and Industrial & Systems Engineering (College of Engineering). In addition, staff and students from these and other departments are actively invited to take important roles in the Institute's research projects.

A BRIEF HISTORY OF UF-RRRI STAFFING

As the second RRRI established in the nation with the support of the Social and Rehabilitation Service (then Office of Vocational Rehabilitation), the UF-RRRI began operations in January, 1962. Initially, Dean Darrell J. Mase was the project director for the Institute and Dr. John R. Barry was research coordinator. Dr. Barry then directed the program from 1963 through August, 1966. It was during this period that core research studies on factors related to client motivation for rehabilitation professions were undertaken. These studies were conducted in collaboration with Dr. Harry Anderson, Dr. George Dunteman and Mr. John P. Bailey, Jr. Between September, 1966, and August, 1967, at which time Dr. John E. Muthard took over, Dr. Dunteman was acting head of the UF-RRRI. The new core research program was then established by Dr. Muthard and Dr. Neil S. Dumas, who joined the Institute staff in June, 1968.

COMPLETED PROJECTS AND PUBLISHED REPORTS

STUDIES OF STUDENTS IN HEALTH RELATED PROFESSIONS.

One of the two initial core research areas for the UF-RRRI was the extended study of health related professions (HRP) students. The major product of this work is a monograph which reviews the literature and summarizes the first series of studies by Anderson, Barry, and Dunteman (1966). These studies examined the utility of several measures for classifying students and predicting subsequent major fields chosen. In these and subsequent studies, the UF-RRRI staff demonstrated the potential of various analystic techniques, such as factor analysis, discriminant analysis, and canonical correlation for research in the health related professions. The Strong Vocational Interest Blank for Women (SVIB) proved rather consistently to be the most useful measure of a battery which included the Minnesota Multiphasic Personality Inventory (MMPI), Florida Placement Examination (FPE), and a Career Choice Questionnaire (CCQ). As indicated previously, the present Institute staff intends to continue the longitudinal study of those student groups after they graduate and become employed.

In a series of papers since 1965, the development and use of patient evaluation measures for occupational and physical therapy were described by the Institute staff. The staff also collaborated with professionals on the Florida campus to develop criteria measures for these two disciplines.

Classification and Selection of Students.

Dunteman, G. H., Anderson, H. E. Jr., Barry, R.

Characteristics of Students in the Health Related Professions, Regional Rehabilitation Research Institute, University of Florida, Gainesville, No. 2, June, 1966.

This monograph describes the initial phases of an on-going longitudinal research program aimed at determining distinctive motivational, personality, and other personal characteristics of different groups of students in some of the health related professions. The prediction of both academic and job success within these same health professions is also to be explored.

The subjects of the present studies were predominantly freshman and sophomore female students enrolled in an introductory course designed to give an orientation to the health professions. The students were divided into four groups on the basis of the fields they planned to study: medical technology (MT), physical therapy (PT), occupational therapy (OT), or some other field (O). Personality, interest, attitude, aptitude, and biographical information data were obtained from these students. Discriminant analyses were then made to determine whether these four groups of students could be significantly differentiated from each other on the basis of the above data. A further question concerned whether the differences among the groups of students were of practical significance in the identification of a student's group membership. The Florida Placement Examination (FPE), an achievement test, and the Strong Vocational Interest Blank (SVIB) discriminated among the groups, while the Minnesota Multiphasic Personality Inventory, School and College Ability Test, and the Attitude Toward Dis-

abled Persons did not. Futhermore, these differences were significant in a practical sense as well as in a statistical sense. On the basis of both achievement test scores and interest scores, the students could be adequately classified into four groups. It was found that the SVIB predicted group membership far more efficiently than the FPE.

Separate factor analyses of the Minnesota Multiphasic Personality Inventory and the Strong Vocational Interest Blank suggested the underlying personality and interest structure of students in the health related professions. Use of the resulting factors simplified the discriminant analyses by reducing the number of dimensions needed to account for group differences.

The most important factor from the analysis of the MMPI was characterized as social submissiveness and emotional warmth in a serious, prone-to-worry person. The second most important factor was characterized by extroversion, social assertiveness, independence of thought and action, and a tendency toward unsettled personal identification and philosophy. The remaining factor appeared to reflect an impunitive attitude in the way people view others, the world, and themselves.

Nine factors were extracted from the SVIB. The fourth factor was of special interest because scales measuring interest in the health related professions loaded heavily on it. Both the Nursing and Occupational Therapy scales, which were the major determinants of Factor IV, loaded only on that Factor. This was in contrast to many of the other scales which had significant loadings on more than one factor. This factor analysis suggested that interest in the health professions may be more homogeneous in nature than many other interest areas.

Five factors of the SVIB enabled discrimina-

tion among the four groups. The MT group scored the lowest on two factors which reflected interest in non-technical occupations requiring personal interactions. Both PTs and Os scored low on a third factor which was defined by the Artist, Author, and Librarian interest scales. OTs scored lowest on a factor defined by clerical and business interest scales, and the PTs scored highest on a factor defined by physical education teacher scales.

Study of occupational therapy students indicated that clinical ratings of OT performance could not be predicted from academic course grades or the FPE achievement test. This study suggested that clinical performance and academic achievement are relatively independent. It appears quite likely that non-intellective predictors will be needed to predict the clinical performance criteria.

Plans for future analyses were discussed, including follow up studies of current students after graduation. The same predictor data, used in the discriminant analysis, will be used again in an attempt to predict OT and PT job success. Eventually, attempts will be made to develop a joint index using information derived from both regression and discriminant analyses for use in recruiting, selecting and training personnel for the health related professions.

Anderson, H. E., Jr. and Barry, J. R.

Occupational choices in selected health professions, Personnel and Guidance Journal, 1965, 44, 177-184.

This paper reports the results of five studies with four groups of female students: those intending to enter occupational therapy,

physical therapy, medical technology, and "others" who were interested generally in health and rehabilitation professions. No discrimination could be made among the four groups on the basis of personality, attitudinal, and basic abilities variables. Significant differences were observed, however, on the Florida Placement Examination with prospective physical therapy students somewhat low on the natural and social science scales. Significant differences were determined, also, with the Strong Vocational Interest Blank. Medical technologists were low on factors that contained nontechnical vocations requiring a good deal of interaction with people; physical therapists were low on the artist-author-librarian factor but high on the physical education teacher scales. Optimizing discriminant equations are presented where findings were significant, and the results are discussed in terms of educational and professional implications as well as future research.

Anderson, H. E., Jr.

A factorial study of the female form of the SVIB
Journal of Applied Psychology, 1956, 49, 270-273.

The female form of the SVIB was administered to 203 freshman and sophomore female students in an introductory course in the University of Florida's College of Health Related Services. Twenty-nine scales were scored, intercorrelated, and factor analyzed. Nine factors resulted with loadings of ±.35 or more. The factors are discussed in terms of implications for female vocational interest and compared with previous factor analytic studies with the male form of the Blank. Based on the factor structure of the female interests groupings of occupations are presented.

Dunteman, G. H.

A note on the factorial invariance of the female form of the SVIB, Journal of Applied Psychology, 1966, 50, 561-562.

The factorial structure of an early and recent female form of the SVIB was compared. It was found that two of the largest factors isolated in the recent study were highly similar to two of the four factors isolated in the earlier study. The remaining two factors isolated in the earlier study showed moderate similarity to two additional factors out of the nine factors found in the recent study. It was concluded that, in general, the factorial structure of the two forms was quite similar.

Dunteman, G. H.

Discriminant analyses of the SVIB for female students in five college curricula, Journal of Applied Psychology, 1966, 50, 509-515.

A multiple discriminant-function analysis disclosed that groups of students majoring in Occupational Therapy, Physical Therapy, Medical Technology, Nursing, and Education could be successfully distinguished from each other on the basis of 29 scales of the SVIB for Women. Furthermore, two discriminant analyses using 11 scales also indicated successful discrimination. Two discriminant functions were significant in each analysis and the configuration of the groups in the discriminant space and efficiency of classification for all analyses were highly similar. It was concluded that the SVIB should be a useful instrument for discriminating between college majors when utilizing discriminant-function analysis.

Dunteman, G. H.

Validities of the female form of the Strong Vocational Interest Blank occupational therapy, laboratory technology, and nursing keys, Journal of Experimental Education, 35, 4, 53-57.

An attempt was made to determine if the Occupational Therapy, Laboratory Technician, and Nursing scales of the SVIB would differentiate among female college students in Occupational Therapy (OT, N=47), Medical Technology (MT, N=36), Nursing (N, N=47), and a group of other (O, N=60), students not enrolled in any health professions curricula. A generalized D^2 indicated that the score vectors for the four groups were significantly different from each other. Since the groups could be differentiated on the basis of the three SVIB scales, likelihood functions for predicting group membership were computed. These equations indicated that the Laboratory Technician scale contributed the most to group discrimination. However, each scale was weighted heavily in the equation for the group for which the scale was specifically constructed. The best classification occured for the MT group and the worst, for the Other student group. D^2s computed for each of the six possible two group comparisons indicated that the OT, N, and O groups clustered much nearer to each other than they did to the MT group. In general, the three SVIB scale performed quite well in differentiating among the four groups.

Dunteman, G. H.

Cross validities of six SVIB discriminant equations for female students in health and education Educational and Psychological Measurement, 1967, 27, 1091-1097.

This study is a cross-validation of a discriminant analysis of an earlier investigation by G. H. Dunteman. Six different classification equations derived from various scales of the SVIB for Women were cross-validated on a more recent sample of 135 female students currently enrolled in medical technology, occupational therapy, physcial therapy, nursing, and education at either the junior or senior levels. All six equations yielded a higher percentage of correct classifications on a cross-validation sample than would be expected by chance and some equations performed much better than others. Indications are that the most effective equations on cross-validation were those that were developed on the basis of a "moderate" fit to the validation data.

Dunteman, G. H. and Bailey, J. P., Jr.

A canonical correlational analysis of the SVIB and the MMPI for a female college population
Educational and Psychological Measurement, 1967, 27, 631-642.

Canonical correlational analysis was used to determine the extent to which the MMPI and the SVIB for women were related and how many common factors there were underlying the relationships between these two sets of variables. The results suggest that perhaps there is more of an overlap between inventoried personality and interest traits than has been supposed. Canonical correlational analysis, as opposed to factor analysis, seems to bring out these similarities.

Anderson, H. E. Jr., Davis, H. C. Jr. and Wolking, W. D.

A factorial study of the MMPI for students in health and rehabilitation, Educational and Psychological Measurement, 1966, 26, 29-39.

Three factors were constructed, via the principal component method, from the MMPI scores of N=168 female students (freshmen and sophomores) enrolled in a basic course in the University of Florida College of Health Related Professions. These factors are part of a longitudinal study to investigate the relationship of the personality structure of students in health and rehabilitation pre-professional programs to performance measures during and after training. The factors contained the following MMPI scales: I) D, Si, Pt and Pa; II) Sc, Ma and Pd; and III) Hy and Hs. The M-F scale has its highest loading on Factor II, although the absolute value of the loading is not high. An interpretation of these factors, within the limits of the validity of the MMPI research on non-clinic samples of college females, is provided. Directions for further research are indicated. Comments concerning the use of canonical correlations, with respect to scoring artifacts in the MMPI scales, are also provided.

Dunteman, G. H.

A discriminant analysis of the MMPI for female college students in health and education, Journal of Experimental Education, 35, 3, 85-90

A discriminant function analysis involving the ten basic Minnesota Multiphasic Personality Inventory scales was conducted on the following five college curriculum groups: Occupational Therapy (OT, N=47), Physical Therapy (PT, N=44), Medical Technology (MT, N=51), Nursing (N, N=53) and Education (E, N=24). The largest discriminant function was significant at the .02 level

while the remaining three functions did not approach significance at the .05 level. The MT group was fairly well separated from the OT, PT, and N groups by the largest discriminant function. The Introversion scale had the largest weight in this discriminant function. Further, the configuration of the five groups in the space defined by the first two discriminant functions was discussed and it was concluded that, while the results are of theoretical interest, they have limited value in a practical real-life guidance situation.

Bailey, J. P., Jr.

"Some Comparisons of Occupational Therapy Biographical Facts With Implications for Recruiting," American Journal of Occupational Therapy, 1965, 19, (2), 76-78.

The responses to a Career Choice Questionnaire of 185 college women enrolled in an introductory course to the health related professions, and who later earned a degree in occupational therapy, medical technology, physical therapy, nursing or education at the University of Florida, are examined for differences of possible use in prediction, counseling, or recruiting. Specific contrasts are made between occupational therapy and each of the other four groups and a composite of a typical freshman or sophomore prospective occupational therapist is drawn. Based on these responses, occupational therapists are urged to recruit more extensively at the high school level.

Criteria for OT and PT Performance.

Jantzen, A. C. and Anderson, H. E. Jr.

Patient evaluation of occupational therapy programs, American Journal of Occupational Therapy, 1965, 19, (1), 19-22.

This study examined selected correlates of patients' evaluations of occupational therapy (OT) service programs. A questionnaire was devised to obtain patients' ratings of the therapist in three roles: 1) as a teacher, 2) as a therapist and 3) as a professional person, as well as the patients' evaluation of their OT clinical programs. Responses were obtained from N=140 physical disability cases in five institutions and N=159 psychiatric cases in four institutions. The three roles of the therapist were shown to be significantly related to the patients' evaluation of OT, with the role of the therapist qua therapist as the most dominant. The teaching factor was seen to be of more importance for physical disability cases, while inter-personal behavior was relatively more important for psychiatric cases. The results are discussed in terms of implications for future as well as previous research.

Anderson, Harry E. and Jantzen, Alice C.

A prediction of clinical performance
American Journal of Occupational Therapy, 1965, 19, (2), 76-78.

Twenty-eight Occupational Therapy students who graduated from the University of Florida between 1961 and 1964 were rated on the Report of Performance in Student Affiliation and on a rating

form of the American Occupational Therapy Association. Ratings by their supervisors in one or two clinics were correlated with their academic achievement grades in freshman and sophomore courses: in American Institutions, Physcial Sciences, English, Logic, Mathematics, Humanities, Biology and Psychology. All these courses were taken in the freshman and sophomore years. The correlations indicated, as had earlier studies, that grades and achievement measures appear to be ineffective predictors of clinical performance. It is concluded that predictors other than preprofessional course grades need to be used to predict clinical success.

Anderson, E., Jantzen, C., Shelton, J., & Dunteman, G. H.

The effects of response sets in questionnaire studies, American Journal of Occupational Therapy, 1965, 19 (6), 348-350.

The authors' questionnaire on patient evaluation of occupational therapy (OT) programs, which originally contained only positive statements, was reconstructed by restating its items in the negative direction. This was done to test the operation of positive response set in the initial form. Analysis of responses to both forms of the scale by similar groups of patients revealed differences interpreted to be a function of response set. With the negative questionnaire there was a significant lowering of the subscale average ratings, although the interrelationships among the subscales in the two forms remained the same. The negative form was also found to be more efficient than the positive form in predicting the overall evaluation of the therapist. Ratings of the OT as therapist, rather than in terms of teaching role or over impression, were again found most

important in predicting the overall evaluation.

Bailey, J. P. Jr., Jantzen, A. C., and Dunteman, G. H.

"Relative Effectiveness of Personality, Achievement and Interest Measures in the Prediction of a Performance Criterion," American Journal of Occupational Therapy, 1969, 23, (1), 27-29.

The relative effectiveness of the SVIB, the MMPI, and the Florida Placement Examination (FPE) in predicting Report of Performance in Student Affiliation (RPSA) scores for female occupational therapists in a psychiatric setting is assessed and compared. The eleven RPSA Part I trait scores were reduced by principle components analysis to one composite crierion score, which was used as a criterion in each of three regression analyses. The SVIB was by far the most effective predictor, while the MMPI and FPE were about as ineffective as previously reported personality and achievement measures. The implications and possible reasons for these findings are discussed, as well as a suggestion for construction of a better performance rating instrument.

Anderson, H. E. Jr., Aldredge, H. P., White, B. C. and Wroe, M. C.

"The Roles of the Physical Therapist: Their Importance to the Patient, "Journal of the American Physical Therapy Association, 1965, 45, 768-772.

Two hundred and forty-five patients receiving physical therapy in seven different centers throughout the United States were contacted through questionnaires. The questions were designed to determine how patients perceive the role of the physical therapist as a therapist, as a teacher, and the general professional conduct of the physical therapist in terms of the patient's over-all

evaluation of the physical therapy program.

With ratings on the three therapist roles as predictors and the patients overall evaluation of the therapist as the criterion, multiple correlations were calculated for four groups differentiated on patient tenure. In the four analyses, the therapists role as therapist was consistently found to be the best predictor of overall effectiveness. Suggestions were made for additional studies which might give further information on patient reactions to, and impressions of, physical therapists and physical therapy programs.

STUDIES OF CLIENT MOTIVATION.

During Dr. John Barry's tenure as Institute Director, client motivation was a main area of research investigation. The monograph, Client Motivation for Rehabilitation: A Review, summarized relevant literature and suggested methods and lines of attack for further research. The studies conducted at UF-RRRI dealt with three aspects: (1) the client s satisfaction with his environment, (2) the attitudes and values associated with client motivation and (3) the manipulation of rewards as a motivating technique. Most of the completed studies use the Herzberg Two-Factor Theory as a frame of reference. In the course of these investigations, some evidence contradicting this theory was uncovered as well as support for other aspects. Abstracts of the monograph and the UF-RRRI studies are presented below.

Barry, J. R. and Malinovsky, M. R.

"Client Motivation For Rehabilitation: A Review," University of Florida, Gainesville, Florida, Rehabilitation Research Monograph Series, No. 1, 1965.

In this extended review of the literature, the concept of motivation, as used by the various rehabilitation specialties, was described and discussed. In most instances, the concept was found to be used very broadly, More specific definition of the client behaviors and characteristics subsumed under the term motivation strengthened research on client motivation.

For the review, studeis in client motivation were grouped into three major areas: those dealing primarily with physiological and safety needs, those dealing primarily with love and belongingness needs, and those dealing with self-esteem and self-actualizing needs. In addition to this grouping, based upon Maslow's schema for describing personality, subgroupings referring to the source of the client's need or motivation were used.

In some instances, researchers and other writers have considered motivation to be an essentially intrinsic variable or characteristic, i.e., instrinsic to the client and originating within the client's psychological system. Other writers have considered motivation as primarily the result of forces and variables external to the client. Thus, in the review, some researchers and other reports were grouped for consideration in terms of this internal vs. external dichotomy. From the review it appeared that all of these ways of looking at clients' motivation are useful in certain instances. There are few indications from the research that certain approaches or descriptive systems are less useful than others. Difficulties in measuring all of the needs listed were

encountered. Further research is necessary in all of the areas considered in the review.

An additional section of this review dealt with research methodology in general terms. While some of the studies reviewed were of superior design, many suffered from poor measurement techniques, the lack of proper controls, and other contaminating and confounding defects in design. These defects, in most instances, were not pointed out for the specific studies in this review. Instead in the section on research methodology, characteristics of efficient research design were suggested.

In the discussion section, certain issues, such as the definition of client motivation, the meaning of the term rehabilitation, and communication among the rehabilitation specialists, were discussed. Finally, certain over-riding suggestions for enhancing client motivation were suggested in the last section of the review.

In conclusion the authors assert further and better research is unquestionably needed regarding client motivation for rehabilitation. Despite the positive suggestions developed in the review, they think a great deal more needs to be known about the dynamics of rehabilitation.

Barry, J. R.

Client motivation for rehabilitation, Rehabilitation record, 1965, 6, (Jan.-Feb.) 13 - 16.

After mention of the wide variety of meanings and difficulties associated with the concept of motivation, it is defined as, "the extrinsic and intrinsic conditions responsible for variations in the intensity, quality, and direction of ongoing behavior." Some aspects of conscious and unconscious motivation are discussed. Research on client dependency, disabled client job performance, and the influence of the client counselor relationship on the rehabilitation process are cited as examples of motivation related research. In reviewing the research on client motivation previously conducted at the University of Florida Regional Institute, the following three types of studies are described: 1) studies of client satisfaction with his environment; 2) studies of attitudes and values associated with client motivation, and 3) studies of the manipulation of rewards as a motivating technique.

Barry, J. R.

Patient motivation for rehabilitation
The Cleft Palate Journal, 1965, 2, 62-68.

The nature of the rehabilitation process as it related to cleft palate patients is briefly considered. From a comprehensive review of literature, major motivational concepts were briefly explained. The patient's needs and life-situation were cited as key elements in understanding his motivations. Studies of motivational problems among cleft palate patients were also briefly reported. Among the several important considerations in motivating the patient listed were:

1) the patient's acceptance of his disability, 2) his feelings of discomfort and then hope, 3) the patient's expectancies about rehabilitation and the expectancies of those in his environment, 4) the extremely complex relationships between the patient and his therapists, 5) the kinds and types of external pressures upon the patient and 6) the availability to the patient of adequate rehabilitation resources. These considerations in greater or lesser degree are important in the rehabilitation of any kind of disability including that of the cleft palate and the cleft lip. A patient's motivation for rehabilitation can be improved and enhanced by an increased understanding of and attention to these considerations.

Malinovsky, M. R. and Barry, J. R.

"Determinants of work attitudes," Journal of Applied Psychology, 1965, 49, 446-451.

The motivator-hygiene theory of work attitudes assumes that two independent sets of variables (motivator and hygiene) are related to employee job satisfaction and dissatisfaction. The applicability of this assumption to the job attitudes of 117 blue-collar workers was tested through factor analyses of a 40-item work attitude survey. The job attitudes of blue-collar workers could be separated into two relatively independent sets of variables, comparable to motivator or hygiene variables. However both sets of variables were found to be positively related to job satisfaction, contrary to predictions from Herzberg's Two-Factor theory.

Bloom, R. and Barry, J. R.

Determinants of work attitudes among Negroes Journal of Applied Psychology, 1967, 51, 291-294.

The motivator-hygiene theory of work attitudes assumes that two independent sets of variables determine job satisfaction and job dissatisfaction. The generality of this theory was tested with responses from 85 Negro blue-collar workers to a 40-item questionnaire. These data were factor analyzed and compared with comparable data from 117 white blue-collar workers. The two sets of factors appeared to differ although some similarities were found. It appeared that hygiene factors were more important to the Negroes than to the whites. The two-factor theory may be too simple to encompass the concepts of job satisfaction and dissatisfaction, at least in the blue-collar Negro. The two-factor theory may be less useful when one considers low-status work.

Noonan, J. and Barry J. R.

Differential effects of incentives among the retarded, Journal of Educational Research, 1967, 61, (3), 108-111.

Normals, institutionalized retardates, and non-institutionalized retardates, matched on the basis of MA, were tested on a simple performance task under social and tangible reinforcement contitions were believed to reflect differences in the motivational systems of the groups. The performances of the normals and institutionalized retardates were very similar, as these two groups did not perform significantly longer or faster than each other on the task. The non-institutionalized retardates performed significantly longer than either of the other two groups, and significantly faster than the institutionalized retardate group. This result was explained in terms of the greater frustration and failure which these Ss may experience in their daily lives.

Barry, J. R., Dunteman, G. H., and Webb, W.

Personality and motivation in rehabilitation
Journal of Counseling Psychology, 1968, 237-244.

This study concerned the psychological referents for patient motivation for recovery and return to work. Criterion ratings of this motivation, based upon follow-up data for a VA patient sample who had primarily a physical disability were compared with a variety of psychological assessment data obtained one year before the criterion data were collected. A factor analysis of the assessment data yielded 14 primarily test-specific factors. Strong patient motivation for recovery and return to work was associated with favorable attitudes toward self, a small discrepancy between ratings of real and ideal self, intelligence, attitudes of social restraint, and an interest in people and in getting along with them.

OTHER STUDIES

Among the many other areas of investigation pursued by the Institute staff have always been: 1) manpower and research utilization, 2) statistical methodology and 3) studies of personality. With respect to manpower and research utilization, two reports by the first Institute Director, Dean D. J. Mase, are presented here. Studies by the current Institute staff in this area are described in the first section of this report. As previously mentioned, this topic is now the Institute's prime area of research interest. In addition, one statistical methodology study and three personality studies using the MMPI with parents of disturbed children as well as alcoholic males are also presented.

Mase, D. J.

Manpower utilization for the future
Journal of Rehabilitation, 1964, 30 (1), 37-39, 61.

Extensive evidence supporting the need for increased manpower in the health related professions as well as psychology and other specialties is cited. The author asserts that it will be necessary to increase the number of people in these professions by 50 to 100 percent and that this alone will not meet the need unless more effective techniques of manpower utilization are also employed. His main suggestion is that "We.... permit" these professionals to "do what they are uniquely trained and qualified to do, and train assistants and aides to do" those things which do not require extensive abilities. He also indicates that time and motion studies as well as the application of modern management procedures would do much toward lessening costs and improving the ability of these professions to provide services. A brief review of the efforts of various professional associations in this connection is included.

Mase, D. J.

Use of research resources, In Mase, D. J. (Ed.) The Development of research in vocational rehabilitation: proceedings of a conference on research in state program development, Gainesville, Fla.: University of Florida, 1961, pp. 72-80.

The principles which guided the work of the University of Florida Regional Rehabilitation Research Institute were described. Emphasis was given to the desired working relationship between the research staff and faculty in the College of Health Related Professions. Also discussed were: the urgent need for research leading to new techniques and methods for improving the rehabilitation process and the barriers to conducting such

research (unavailability of records, confusion in disability nomenclature, and lack of appropriate classification systems). The experience obtained by studying a group of disabled college students was used to illustrate the problems of locating subjects and securing records. Recommendations to ameliorate the barriers were made.

Dunteman, G. H.

Graphical procedures for multivariate classification, Educational & Psychological Measurement, 1967, 27, 837-844.

This study presents an outline of a graphical procedure for classifying multivariate observations into two or more groups. For purposes of exposition, it was assumed that there were two groups of equal size. However, the procedure could be generalized to three or more groups of unequal size. The advantage of a graphical procedure is that the magnitude of differences among and within groups can be easily visualized.

Barry, J. R., Anderson, H. E., Jr., & Thomason, O. B.

MMPI characteristics of alcoholic males who are well and poorly adjusted in marriage. Journal of Clinical Psychology, 1967, 23, 355-360.

The MMPI was administered to 521 male alcoholics. Alcoholics who were better adjusted to their marriage were seen as less unstable, immature, suspicious, depressed, withdrawn, erratic, and anxious and had superior ego strength. Factor analysis of the correlation matrices of the MMPI scales for three groups were carried out: well adjusted in their marriage, poorly adjusted, and a middle group. Four factors appeared consistently in all three analyses. Five MMPI variables, Es, L, A, Hy, and Si, contributed to differentiating

among the groups when a discriminant analysis was conducted. However, only 46 percent of the sample from which the equations were derived could be correctly identified.

Dunteman, G. H. and Wolking, W. D.

Relationship between martial status and the personality of mothers of disturbed children
Journal of Counseling Psychology, 1967, 31, 220.

A two group linear discriminant-function analysis of MMPI profiles of : 1) the divorced and permanently separated mothers (N=44) of emotionally disturbed children; and 2) those of the married mothers (N=44) of emotionally disturbed children failed to demonstrate a significant difference at the .05 level. Further, a chi-square test indicated that the frequency of behavior disorders between the two groups was not significantly different at the .05 level. These results, although finding some similar but statistically insignificant trends, do not otherwise support the findings for previous parallel studies.

Wolking, D. Dunteman, H., and Bailey, P., Jr.

Multivariate analyses of parents' MMPIs based on the psychiatric diagnoses of their children
Journal of Consulting Psychology, 1967, 31, 521-524.

The study attempted to determine if the mean MMPI profiles of the parents of six child diagnostic groups were significantly different from each other. The parents were grouped according to the diagnoses of their children. Separate analyses were made for the mothers of males, mothers of females, fathers of males, and fathers of females. An overall multivariate test of the differences in the parents' mean MMPI profiles

for each of the samples indicated significant differences in parent profiles only for the mothers of male children. However, the difference for this analysis was not sufficient to help the clinician in distinguishing between parents of normal and clinic groups of children or among the parents of several diagnostic groups of clinic children.

Appendix A

REGIONAL REHABILITATION RESEARCH INSTITUTES
sponsored by
Social and Rehabilitation Service

REGION I - Northeastern University
Boston, Massachusetts

Dr. Reuben J. Margolin, Project Director
Dr. George Golden, Research Director

Core area of research: The relationship between motivation and dependency.
RD-3017-G

REGION II - New York State School of Industrial and Labor Relations
Cornell University
Ithaca, New York 14850

Dr. William J. Wasmuth, Project Director
Mr. William Button, Research Director

Core area of research: Sheltered workshops - personnel practices, labor relations, wages, supervisions, etc.- The Human Element.
RD-2075-G

REGION III - University of Maryland
College Park, Maryland

Dr. Edmund Crosbey, Project Director
Mr. Auburn J. Lamb, Research Director

Core area of research: Sheltered work-

shops - materials, equipment, work flow, environmental conditions, etc. - The Physical Element.
RD-2040-G

REGION IV - University of Florida
Gainesville, Florida

Dr. John E. Muthard, Project Director

Core area of research: Personnel utilization in rehabilitation services.
RD-2870-G

REGION V - Department of Counseling and Behavioral Studies
University of Wisconsin
Madison, Wisconsin

Dr. George N. Wright, Project Director
Dr. Alfred Butler, Research Director

Core area of research: Professional functions of rehabilitation counselors.
RD-1311-G

REGION VI - University of Missouri
Columbia, Missouri

Dr. John McGowan, Project Director
Dr. Joseph Kunce, Research Director

Core area of research: Social, economic, psychological and cultural factors in the rehabilitation process, and the interaction between clients and professional workers.
RD-2326-G

REGION VII - University of Oklahoma
Norman, Oklahoma

Dr. Harold Vlaile, Project Director

Core area of research: Administration and management in State rehabilitation agencies.
RD-1967-G

REGION VIII - University of Utah
Salt Lake City, Utah

Dr. William M. McPhee, Project Director

Core area of research: Interpersonal relations in rehabilitation in rural areas.
RD-1437-G

REGION IX - University of Washington
Seattle, Washington 98105

Dr. Robert W. Macdonald, Project Director
Dr. Manzer J. Griswold, Research Director

Core area of research: Role of the family in the rehabilitation process.
RD-2104-G

Appendix B

Publications of the University of Florida
Regional Rehabilitation Research Institute

Monographs:

Barry, J. R. and Malinovsky, M. R., Client Motivation for Rehabilitation: A Review. Rehabilitation Research Monograph Series No. 1, 1965. (out of print)

Dunteman, G. H., Anderson, H. E., Jr., and Barry, J. R., Characteristics of Students in the Health Related Professions. Rehabilitation Research Monographs Series No. 2, 1966.

Bibliographies and Indexes:

Bailey, J. P., Jr., and Muthard, J. E. (Eds.) Reports and Articles Resulting from Research and Demonstration Projects: A Bibliography: 1968, 1968.

Dumas, N. S. (Ed.) A Guide to Recent Operations Research, Computer, Management, Business, and Other Technical Literature for Rehabilitation Personnel: 1,000 Abstracts Indexed by Keywords, 1968:

Muthard, J. E., Dumas, N. S., and Bailey, J. P., Jr. (Eds.) A KWIC--Keyword in Context- Index of Selected Rehabilitation Counseling Literature, 1968.

Conference Proceedings:

Dumas, N. S. (Ed.), Research Utilization and Dissemination, 1968.

Reprints or copies of most of the journal articles listed in this report are available upon request from the UF-RRRI. The other RRRI reports listed above are also available.